

Year 8 – Subject Intent Outline Plan – Science

KS3 Overview	<p>Students start their Science lessons in Year 7 with an ‘Introduction to science’. Key skills and knowledge are covered to ensure all students have the foundation knowledge to progress. We have a two-year KS3 curriculum that follows the AQA specification where we teach the 10 ‘big ideas’ in Biology, Chemistry and Physics (listed in bold below). Year 7 learning is consolidated and extended when the same ‘ideas’ are taught in Year 8. The complex language of Science is considered in every topic and any misconceptions the students may have are address throughout our teaching. Practical tasks are implemented to build skills and inspire students in their learning of science. Students are taught in mixed ability groups where meeting the individual needs of all students is an important priority. Low stakes assessment tasks are completed at the end of each topic to assess understanding and address any misconceptions. Students are formally assessed at the beginning of Year 7 and 8 to establish a baseline and then during terms 3 and 5 to monitor progress. Homework is used to check understanding of the lessons and to complete revision through Doodle.</p>		
	Terms 1-3 Topics taught on rotation	Term 4-5 Topics taught on rotation	Term 6 Topics taught on rotation
The 10 Science ‘Big Ideas’	<ol style="list-style-type: none"> 1. Organisms 2. Forces 3. Matter 4. Energy 5. Reactions 	<ol style="list-style-type: none"> 6. Genes 7. Earth 8. Waves 	<ol style="list-style-type: none"> 9. Ecosystems 10. Electromagnets
Core Knowledge and understanding	<ol style="list-style-type: none"> 1. Organisms: Breathing and digestion. 2. Forces: Contact forces and pressure. 3. Matter: The periodic table and elements. 4. Reactions: Chemical energy and types of reaction. 5. Energy: Work, heating and cooling. 	<ol style="list-style-type: none"> 6. Genes: Evolution and inheritance. 7. Earth: Climate and the Earth’s resources. 8. Waves: Sound and light. 9. Waves: Wave effects and wave properties. 	<ol style="list-style-type: none"> 9. Ecosystems: Respiration and photosynthesis 10. Electromagnets: Magnetism and electromagnetism
Key Vocabulary (examples)	<ol style="list-style-type: none"> 1. Organisms: Breathing, trachea, nutrients, obesity, enzyme. 2. Forces: Pressure, friction, tension, density, resultant force. 3. Matter: Toxic, element, compound, polymer, product, reactant. 4. Reactions: Catalyst, exothermic, endothermic, combustion. 5. Energy: Work, conduction, convection, lever, machine. 	<ol style="list-style-type: none"> 6. Genes: Population, gene, biodiversity, gametes. 7. Earth: Renewable, sustainable, atmosphere, recycling. 8. Waves: Transverse, longitudinal, frequency 9. Waves: Signal, wavelength. 	<ol style="list-style-type: none"> 10. Ecosystems: Starch, glucose, energy, limiting factor. 11. Electromagnets: Electromagnet, field, repulsions, motor.

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<p>Assessment (Formative and summative)</p>	<ul style="list-style-type: none"> • Formative practical assessment (RP) • Formative end of chapter assessment • Baseline assessment at the end of introduction to science topic. • Summative assessment for end of term 3 covers all topics studied this year 	<ul style="list-style-type: none"> • Formative practical assessment (RP) • Formative end of chapter assessment • Summative assessment for end of term 5 (to include interleaved topics from terms 1-5) 	<ul style="list-style-type: none"> • Formative practical assessment (RP) • Formative end of chapter assessment
<p>Cultural literacy, LOtC and other links e.g. world of work</p>	<ol style="list-style-type: none"> 1. Organisms: Smoking, healthy diet, Obesity, Informed life choices, Careers choices: Nutrients, Sports science, LOtC: Effects of exercise. 2. Forces: Linked to stem related careers. Discussion about road safety. 3. Matter: Catalysts in industry. Effects of combustion. 4. Reactions: The history of the periodic table. Use of models. Careers – applications of special materials. 5. Energy: How to reduce energy transfer 	<ol style="list-style-type: none"> 6. Genes: Diversity and variation, ethical debates around seed banks and genetic testing. Issues surrounding gender identity and the inheritance of gender. 7. Waves: Understanding communications. Links to careers – sound and light engineers. LOtC – measuring the speed of sound 8. Earth: Debate and understanding of human impact on the environment, sustainability and protecting resources for future generations, carbon footprints. The importance of peer review. 	<ol style="list-style-type: none"> 9. Ecosystems: Understanding and discussion of human impact on biodiversity. LOtC: sampling techniques, field investigations. Links to careers in ecology and sport science and food technology. 10. Electromagnets: Links to careers and engineering.
<p>Homework</p>	<p style="text-align: center;">Doddle tasks to check understanding and consolidate learning. Revision tasks as and when required</p>		
<p>The informal curriculum</p>	<p>We are immensely proud of the enrichment opportunities available to students during KS3. Within lessons students can take part in the ‘Race to the line’ challenge, ‘Demo Day’ and other activities during science week. We run lunch regular lunchtime STEM and Animal CARE clubs. We offer STEM trips – ‘The Faraday Challenge’ and opportunities to visit the Winchester Science museum and the ‘Big Bang Fair’ at Ardingly. Students can also be supported to gain Bronze or Silver CREST awards.</p>		